

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (currently amended) A method of obtaining an optical lens from a polymerizable material, comprising:

providing a mold (1) that is formed of two facing and spaced shells (2, 3) and an annular seal (4) comprising means (10, 11) for cooperating with the periphery of said shells (2, 3) to define a molding cavity, said seal (4) being adapted to be compressed elastically when said shells (2, 3) are moved toward each other;

filling said molding cavity with said polymerizable material;

polymerizing the material filling the molding cavity;

prior to the polymerizing the material filling the molding cavity, applying an external mechanical force to move said shells toward each other; and

releasing said force, the force producing a compression of the seal (4) and the shells (2, 3), wherein

a filling hole (19) is provided in said annular seal (4), away from said means (10, 11) for cooperating with the periphery of the shells (2, 3), in that during said filling stage said material is introduced into the cavity through said filling hole

(19), and in that said material is introduced after said step of applying a mechanical external force to move said shells toward each other and before said step of releasing said force,

wherein a plug (5) is provided for plugging each hole (19) in said seal (4) and said filling step comprises, after introducing said material and before said step of releasing said force, a step of plugging each of said holes (19) with one of said plugs (5),

the only hole in said annular seal (4) is said filling hole (19),

the only hole in said annular seal (4) is said filling hole (19), and

said filling hole comprises a first section (21) and a second section (22), the first section (21) extending between a first end opening into said molding cavity and a second end at which it is joined to a first end of said second section (22), in that a plug (5) is provided for plugging said filling hole and comprises a body (25) having a first portion adapted to fit tightly into said first section (21) of the filling hole (19) to plug the filling hole (19), and the body (25) of the plug (5) has a second portion to define with said second section (22) of the filling hole (19) a chamber (26) around said second portion of the body (25), with said first portion of the body (25) having a free end, and in that said cavity and said first section (21) of

the hole (19) are filled during said step of introducing the polymerizable material into the cavity.

2-5. (canceled)

6. (currently amended) The method according to claim [[5]] 1, wherein said molding cavity and said first section (21) of the filling hole (19) are filled during said filling step to the level of the junction between the first section (21) and the second section (22).

7. (previously presented) The method according to claim 6, wherein the volume of said chamber (26) around the body (25) of the plug (5) is greater than the volume of said first section (21) of the filling hole (19).

8. (currently amended) The method according to claim [[5]] 1, wherein said filling hole (19) further comprises a third section (23) that extends between a first end at which it is joined to the second end of the second section (22) and a second end that opens to the exterior of said seal (4), and in that said plug (5) comprises a head (24) adapted to fit tightly into said third section (23) of the filling hole (19) to plug it, so that said chamber (26) is then entirely closed.

9. (previously presented) The method according to claim 1, wherein a boss (20) is provided around said filling hole (19) and projects relative to the lateral surface (15) of the seal (4).

10. (previously presented) The method according to claim 1, wherein said filling hole (19) is oriented in a radial direction.

11. (previously presented) The method according to claim 1, wherein said filling hole (19) is halfway or substantially halfway between said means (10, 11) adapted to cooperate with a first shell (2) and with the second shell (3), respectively.

12. (previously presented) The method according to claim 1, wherein said step of applying a mechanical external force to move said shells toward each other is adapted to move said shells toward each other until a predetermined force is reached.

13. (previously presented) The method according to claim 12, wherein said force to move said shells toward each other is produced by an actuator (37) connected to a control center (40).

14. (previously presented) The method according to claim 12, wherein, during said step of applying a force to move said

shells toward each other, said force is applied to said shells by way of respective sleeves (34, 35) having a diameter slightly less than that of said shells (2, 3).

15. (previously presented) The method according to claim 1, wherein a unit (31) is provided for receiving said mold (1) and in that said step of applying a force to move said shells toward each other and said step of releasing said force are effected by means of said receiving unit (31).

16. (previously presented) The method according to claim 15, wherein centering means (32) and angular positioning means (33) are provided in said unit (31) for receiving the mold (1).

17. (previously presented) The method according to claim 16, wherein said centering means comprise two fingers (32) oriented longitudinally and adapted to cooperate with the lateral surface (15) of said seal (4) and said angular positioning means comprise a fork (33) adapted to cooperate with a boss (20) projecting relative to the lateral surface (15) of said seal.

18. (previously presented) The method according to claim 15, wherein, for effecting said filling step, there are provided a station (41) for introducing said polymerizable material into the cavity of said mold (1) and a station (42) for plugging said

filling hole, said introduction station (41) and said plugging station (42) being disposed side by side, and in that said unit (31) for receiving the mold (1) is movable between a first position in which it is vertically aligned with the plugging station (42) and a second position in which it is vertically aligned with the introduction station (41).

19. (previously presented) The method according to claim 1, wherein said step of introducing the polymerizable material is effected by means of a station (41) that comprises a nozzle (48) for introducing said material and a nozzle (49) for aspirating surplus material.

20. (previously presented) The method according to claim 19, wherein said nozzle (48) for introducing said material is inclined.

21. (previously presented) The method according to claim 19, wherein the distal end of said nozzle (48) for introducing said material is below the distal end of said aspiration nozzle (49).

22. (previously presented) The method according to claim 1, wherein a plug (5) is provided for plugging said filling hole (19) and comprises a blind hole (51) and in that a step of

plugging said filling hole with said plug is effected at a plugging station (42) comprising a canula (50) adapted to be engaged in said blind hole (51) of said plug (5).

23. (previously presented) The method according to claim 22, wherein said canula (50) is connected to a vacuum system to hold said plug in place on said canula and said canula (50) is vented to the atmosphere to release said plug (5).

24. (previously presented) The method according to claim 22, wherein said plug (5) is pressed into said filling hole (19) by driving said plugging station (42).

25. (previously presented) The method according to claim 1, wherein there is provided a relatively narrow lug (17) projecting relative to the lateral surface (15) of said seal (4) and having a transverse end surface (18) incorporating a predetermined location relative to the remainder of the seal.

26. (previously presented) The method according to claim 25, wherein, for effecting said filling step, there are provided a station (41) for introducing said polymerizable material into the cavity of said mold (1) and a station (42) for plugging said filling hole (19), said introduction station (41) and said plugging station (42) being disposed side by side, in that a unit

(31) is provided for receiving said mold (1) in a predetermined position and said receiving unit (31) is mobile between a first position in which it is vertically aligned with the plugging station (42) and a second position in which it is vertically aligned with the introduction station (41).

27. (previously presented) The method according to claim 26, wherein at least one optical cell (46, 47) is provided for detecting the position of the mold (1) relative to said filling station (41) or said plugging station (42) and in that said unit (31) for receiving the mold is placed in vertical alignment with said filling station (41) or in vertical alignment with said plugging station (42) in conjunction with said optical cell (46, 47).

28. (previously presented) The method according to claim 27, wherein respective optical cells (46, 47) are provided for said filling station (41) and said plugging station (42).

29. (previously presented) An annular seal, comprising:  
means (10, 11) for cooperating with a periphery of two facing first and second molding shells (2, 3) to define a molding cavity, adapted to be compressed elastically by a force for moving the shells toward each other that is applied between the means (10, 11) adapted to cooperate with the periphery of the



first shell (2) and the means (10, 11) adapted to cooperate with the periphery of the second shell (3);

a filling hole (19) away from said means (10, 11) and adapted to cooperate with the periphery of the shells (2, 3), the filling hole comprising a first section (21) and a second section (22), the first section (21) extending between a first end opening into said molding cavity and a second end by which it is joined to a first end of the second section (22);, and

a plug (5) comprising a body (25) adapted to fit tightly into said first section (21) of the filling hole (19) to plug it and to define with said second section (22) of the filling hole (19) a chamber (26) around said body (25) of the plug,

wherein the annular seal is adapted for obtaining an optical lens from a polymerizable material by:

filling said molding cavity with said polymerizable material;

polymerizing the material filling the molding cavity;

prior to the polymerizing the material filling the molding cavity, applying an external mechanical force to move said shells toward each other; and

releasing said force, the force producing a compression of the seal (4) and the shells (2, 3), wherein

in that during said filling stage said material is introduced into the cavity through said filling hole (19), and in that said material is introduced after said step of applying the

external mechanical force to move said shells (2, 3) toward each other before said step of releasing said force.

30. (previously presented) The seal according to claim 29, wherein the only hole in it is said filling hole (19).

31. (previously presented) The seal according to claim 29, wherein a the volume of said chamber (26) around the body (25) of the plug (5) is greater than a volume of said first section (21) of the filling hole (19).

32. (previously presented) The seal according to claim 29, wherein said filling hole (19) further comprises a third section (23) that extends between a first end at which it is joined to the second end of the second section (22) and a second end that opens to the exterior of said seal (4) and in that said plug (5) comprises a head (24) adapted to fit tightly into said third section (23) of the filling hole (19) to plug it so that said chamber (26) is then entirely closed.

33. (previously presented) The seal according to claim 29, wherein the seal further comprises a boss (20) around said filling hole (19) and projecting relative to its lateral surface (15).

34. (previously presented) The seal according to claim 29, wherein said filling hole (19) is oriented in a radial direction.

35. (previously presented) The seal according to claim 29, wherein said filling hole (19) is halfway or substantially halfway between said means (10, 11) adapted to cooperate with a first shell (2) and with the second shell (3), respectively.

36. (previously presented) The seal according to claim 29, wherein the seal further comprises a relatively narrow lug (17) projecting relative to the lateral surface (15) of said seal (4) and having a transverse edge surface (18) at a predetermined location relative to the remainder of the seal.

37. (previously presented) The seal according to claim 36, wherein an the angular distance between said filling hole (19) and said relatively narrow lug (17) is such that said lug (17) is visible above said seal (14) when said mold (1) is placed with said filling hole (19) at the top.

38. (previously presented) The seal according to claim 29, wherein said plug (5) for plugging said filling hole (19) comprises a blind hole (51) having its closed end inside said body (25).

39. (previously presented) The seal according to claim 29, wherein the seal further comprises a belt (8) to the inside of which is joined a bead (9) narrower than said belt (8), said bead (9) having a dovetail-shaped cross section whose narrower side is that by which said bead (9) is joined to said belt (8), so that there exists on either side of said bead (9) a recess adapted to receive one of said shells (2, 3).

40. (previously presented) The seal according to claim 29, wherein said plug (5) and the remainder of said seal (4) are made from the same material.

41. (currently amended) A device for obtaining an optical lens from a polymerizable material, the device comprising:

a mold (1) formed of two facing and spaced molding shells (2, 3); and

an annular seal (4) comprising means (10, 11) for cooperating with the periphery of said shells (2, 3) to define a molding cavity, said seal (4) being adapted to be prior to polymerizing said polymerizable material filling the molding cavity, compressed elastically by a force for moving said shells toward each other to produce a compression of the seal (4) providing a seal between the seal (4) and the shells (2, 3); and

means (41, 42) for filling said molding cavity with said polymerizable material and means (34-40) for applying a force for moving said shells (2, 3) toward each other, wherein

said seal (4) comprises a filling hole (19) away from said means (10, 11) for cooperating with a periphery of the shells (2, 3), in that said filling means (41, 42) are adapted to introduce said material into the molding cavity through said filling hole (19), and in that said means (34-40) applying a force for moving said shells toward each other are adapted to apply and release said force respectively before and after the use of said filling means (41, 42), wherein

the device adapted for obtaining the optical lens from the polymerizable material by:

filling said molding cavity with said polymerizable material;

polymerizing the material filling the molding cavity;

prior to the polymerizing the material filling the molding cavity, applying the force to move said shells toward each other; and

releasing said force, the force producing the compression of the seal (4) and the shells (2, 3), wherein

in that during said filling stage said material is introduced into the cavity through said filling hole (19), and in that said material is introduced after said step of applying the

force to move said shells toward each other before said step of releasing said force, and wherein

the filling hole comprises a first section (21) and a second section (22), the first section (21) extending between a first end opening into said molding cavity and a second end by which it is joined to a first end of the second section (22); said seal (4) further comprising a plug (5) having a body (25) with a first portion adapted to fit tightly into said first section (21) of the filling hole (19) to plug the filling hole (19), and the body (25) has a second portion to define with the second section (22) of the filling hole (19) a chamber (26) around said second portion of the body (25), with said first portion of the body (25) having a free end.

42. (canceled)

43. (previously presented) The device according to claim 41, wherein said means (34-40) for applying a force for moving said shells (2, 3) toward each other comprise means (37, 40) for moving said shells toward each other until a predetermined force is reached.

44. (original) The device according to claim 43, wherein said means for applying a force for moving said shells toward

each other comprise an actuator (37) connected to a control center (40).

45. (previously presented) The device according to claim 41, wherein said means for applying a force for moving said shells toward each other comprise, for applying said force to said shell, respective sleeves (34, 35) whose diameter is slightly less than that of said shells (2, 3).

46. (previously presented) The device according to claim 41, wherein the device further comprises a unit (31) for receiving said mold (1) provided with said means (34-40) for applying a force for moving said shells toward each other.

47. (original) The device according to claim 46, wherein said unit (31) for receiving the mold (1) comprises centering means (32) and angular positioning means (33).

48. (original) The device according to claim 47, wherein said centering means comprise two longitudinally oriented fingers (32) adapted to cooperate with the lateral surface (15) of said seal (4) and said angular positioning means comprise a fork (33) adapted to cooperate with a boss (20) projecting relative to the lateral surface (15) of said seal.

49. (previously presented) The device according to claim 41, wherein said filling means comprise a station (41) for introducing said polymerizable material into the cavity of said mold (1) and a station (42) for plugging said filling hole, said introduction station (41) and said plugging station (42) being disposed side by side, in that said device (30) comprises a unit (31) for receiving said mold in a vertical position with said filling hole (19) situated at the top of said seal (4), and in that said unit (31) for receiving the mold (1) is movable between a first position in which it is vertically aligned with the plugging station (42) and a second position in which it is vertically aligned with the introduction station (41).

50. (previously presented) The device according to claim 49, wherein said introduction station (41) comprises a nozzle (48) for introducing said material and a nozzle (49) for aspirating surplus material.

51. (previously presented) The device according to claim 50, wherein said material introduction nozzle (48) is inclined.

52. (previously presented) The device according to claim 50, wherein a the distal end of said introduction nozzle (48) is below a distal end of said aspiration nozzle (49).



53. (previously presented) The device according to claim 50, wherein said plug (5) for plugging said filling hole (19) comprises a blind hole (51) and in that said plugging station (42) comprises a canula (50) adapted to be engaged in said blind hole (51) of said plug (5).

54. (original) The device according to claim 53, wherein the device further comprises means for connecting said canula (50) to a vacuum system to hold said plug in place on said canula and for venting said canula (50) to the atmosphere to release said plug (5).

55. (previously presented) The device according to claim 53, wherein the device further comprises means for driving said plugging station (42) to push said plug (5) into said filling hole (19).